

**REMARKS**

Claims 20-24, 26-30, 32 and 33 are all the claims pending in the application.

**I. Claim Rejection Under 35 U.S.C. § 101 Are Overcome**

At pages 2-3 of the Office Action, all claims are rejected under 35 U.S.C. §101 as allegedly being directed to non-statutory subject matter.

Specifically, the Examiner states that, under the PTO's current interpretation of patent subject matter eligibility, a claimed method must either result in a physical transformation of matter or otherwise produce a concrete, tangible and useful result, i.e. a practical application.

The Examiner also states that adding a step to display the results, such as displaying the identified outlier protein sequences, would overcome the rejection.

Without agreeing with the Examiner, Applicants amend claim 1, deleting non-essential steps (e) and (f) and adding a new step (e) of displaying the results of step (d). Support for this amendment is found at least in Examples 1 and 2 and in Tables 1 and 2 of Example 7, where the results are displayed. In light of Applicants' amendment, the rejection is overcome.

Applicants respectfully request reconsideration and withdrawal of the non-statutory subject matter rejection of claims 20, 22-24, and 29.

**II. Claim Rejection Under 35 U.S.C. § 112, First Paragraph**

(1) At pages 4-5 of the Office Action, the Examiner rejects all claims under 35 U.S.C. §112, first paragraph, as allegedly containing new matter.

The Examiner asserts that undue experimentation would be required to progress from step (c) of claim 20 to step (d) of claim 20, because the appropriate databases are not identified.

The Examiner also contends that claims 30, 32, and 33 contain new matter because the specification only describes "validating" (step f) computationally, but one skilled in the art would allegedly consider "testing" diagnostic targets, drug targets, and vaccine candidates (see claims 30, 32, and 33) to require some sort of laboratory work.

Without agreeing with the Examiner, Applicants overcome the first aspect of the rejection by amending claim 20 to include the pathogenic organisms tested and the databases of

protein sequences to the organisms and the databases of proteins of organisms recited in claim 21. Support for the amendment is found at least at paragraph bridging pages 9 and 10. The second aspect of the rejection is moot since claims 20, 23 and 33 are cancelled. In light of Applicants' amendment, the rejection is overcome.

Applicants respectfully request reconsideration and withdrawal of the new matter rejection of claim 20.

(2) At pages 6-7 of the Office Action, all claims are rejected under 35 U.S.C. § 112, first paragraph, as allegedly not being supported by an enabling disclosure.

Specifically, the Examiner contends that one of skill in the art could not determine whether an outlier protein is truly "unique" without undue experimentation.

Applicants amend claim 20 to include pathogenic organisms tested and the databases of protein sequences to the organisms and the databases of proteins of organisms recited in claim 21. In light of Applicants' amendment, the rejection is overcome.

Applicants respectfully request reconsideration and withdrawal of the enablement rejection of claim 20.

### **III. Claim Rejection Under 35 U.S.C. § 112, Second Paragraph**

(1) At pages 7-8 of the Office Action, all claims are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite.

Specifically, the Examiner contends that the language "wherein said protein sequences are predicted from either whole genomic sequences, or from partial genomic sequences comprising at least one chromosome," in claim 20 is indefinite.

Applicants disagree with the Examiner's conclusion since a genome can constitute more than one chromosome, whereas a gene would not.

Since Applicants' language is definite, Applicants' kindly request withdrawal of the rejection.

Applicants respectfully request reconsideration and withdrawal of the indefiniteness rejection of claim 20.

(2) At page 8 of the Office Action, claim 20 is rejected because, in the Examiner's opinion, the term "outlier protein" is indefinite. Specifically, the Examiner contends that it is unclear whether the term "outlier protein" refers to a physical protein, protein sequence, protein sequence-based attributes, or something else.

Applicants overcome the rejection by amending steps (c) and (d) of claim 20 to use the terms "outlier protein" and "outlier protein sequence".

Applicants respectfully request reconsideration and withdrawal of the indefiniteness rejection of claim 20.

(3) At page 8 of the Office Action, claim 20 is rejected because, in the Examiner's opinion, the language "further testing" and "validating the outlier protein selected in step (e) as an anti-infective," are indefinite because it is allegedly unclear if the testing involved is physical laboratory testing or computational validation.

Applicants' amend claim 20, by deleting steps (e) and (f) from claim 20, and thus overcomes this aspect of the rejection.

(4) At page 9 of the Office Action, claim 29 is rejected because it is allegedly unclear what steps of the independent claim are limited by the recited computer system.

Applicants assert that claim 29 is clear as written.

Since claim 29 recites "wherein steps (a)-(c) are performed by a computer system comprising," this rejection appears to have no merit.

Applicants respectfully request reconsideration and withdrawal of the indefiniteness rejection of claim 29.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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